

WHAT IS CLAIMED IS:

1. A process for producing a sol which particles are dispersed in a medium, wherein the particles have a particle size of 0.005 to 1 μm and comprise as a main component crystalline cerium oxide of the cubic system and as an additional component a lanthanum compound, neodymium compound or a combination thereof, wherein the additional component is contained in $X/(\text{Ce} + X)$ molar ratio of 0.001 to 0.5 in which X is lanthanum atoms, neodymium atoms or a combination thereof, characterized in that the process comprises the steps:
a first step of reacting an aqueous solution which a cerium (III) salt is mixed with a lanthanum (III) salt, a neodymium (III) salt or a combination thereof in an aqueous medium in $X/(\text{Ce} + X)$ molar ratio of 0.001 to 0.5, with an alkaline substance in $(\text{OH}^-)/(\text{Ce}^{3+} + \text{X}^{3+})$ molar ration of 3 to 30 to give a suspension in which cerium (III) hydroxide and a hydroxide of the trivalent additional component X are homogeneously mixed; and
a second step of blowing oxygen or a gas containing oxygen into the suspension at a temperature of 10 to 95°C.
2. A process for producing according to claim 1, wherein the first step is carried out under open to the air.
3. A process for producing according to claim 1, wherein the first step is carried out under an atmosphere of an inert gas.
4. A process for producing according to claim 1, wherein the cerium (III) salt is cerium (III) nitrate, ammonium cerium (III) nitrate, cerium (III) sulfate, ammonium cerium (III) sulfate, cerium (III) chloride, cerium (III) carbonate, cerium (III) acetate, cerium (III) oxalate or a mixture thereof.
5. A process for producing according to claim 1, wherein the lanthanum (III) salt is lanthanum (III) nitrate, lanthanum (III) chloride, lanthanum (III) acetate, lanthanum (III) oxalate or a mixture thereof.
6. A process for producing according to claim 1, wherein the neodymium (III) salt is neodymium (III) nitrate, neodymium (III) chloride, neodymium (III) acetate, neodymium (III) oxalate or a mixture thereof.